City of Santa Cruz and Soquel Creek Water District

COMMUNITY MEETING: RECYCLED WATER

RECYCLED WATER USE IN THE PAJARO VALLEY

Mary Bannister GM
Pajaro Valley Water Management Agency
September 23, 2010

Watsonville Water Recycling Project

Presentation Outline

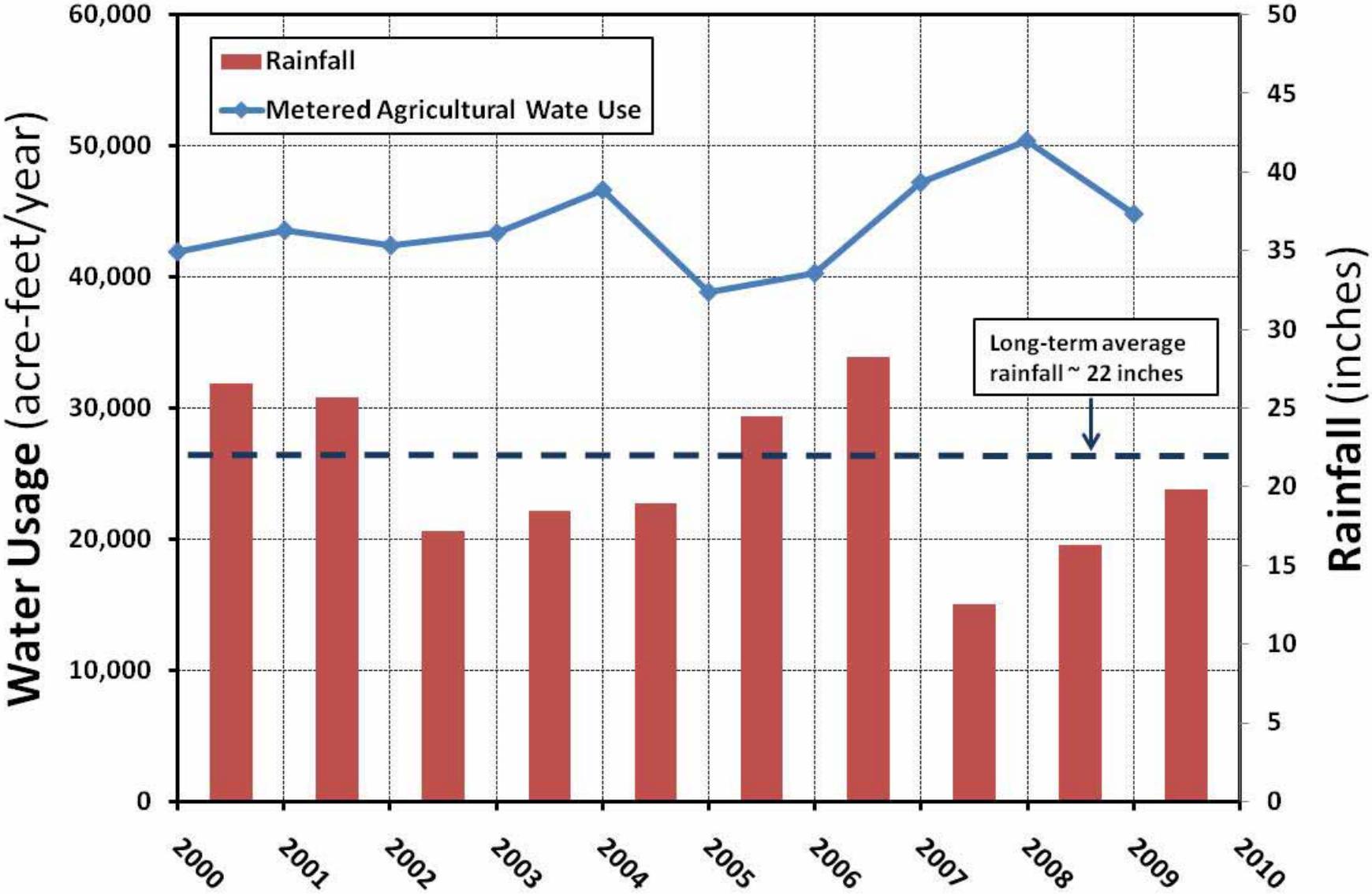
- PVWMA PROBLEM AND SOLUTION
  - Agency Creation
  - Boundaries
  - Groundwater overdraft and Seawater Intrusion
  - The Proposed Solution/Cost
- RECYCLED WATER IMPLEMENTATION
  - New infrastructure vs. old
  - Owner/Grower Education
  - Permit Requirements and Restrictions
  - Public Perception
- OUR UNIQUE SITUATION
  - Little potable use in the area
  - New infrastructure – little need for retrofit
  - Large demand in concentrated area

Who Are We and our Partners?

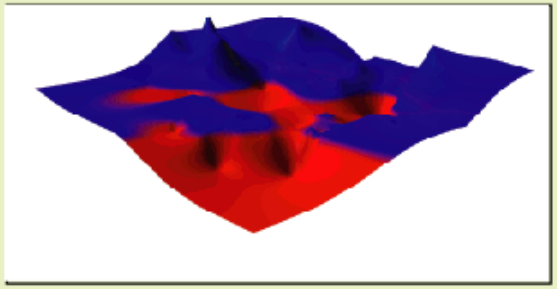
- **PVWMA - Agency's Purpose**
  - Mission is to prevent further increase in, and to reduce long-term overdraft and provide and ensure sufficient water supply in the Pajaro Valley
  - Multi-jurisdictional : City of Watsonville, parts of Santa Cruz, Monterey and San Benito counties.

- **City of Watsonville**
  - **Provides potable water delivery and waste water service to largest residential area in the Valley**
  - **Has worked closely with PVWMA to ensure needs of agricultural community are met with new supply**
  - **Provided funding for the PVWMA to get project built**

Pajaro Valley Agricultural Water Use



37,100 Ac Below Sea Level : 52.5%



Water Table Contour Map

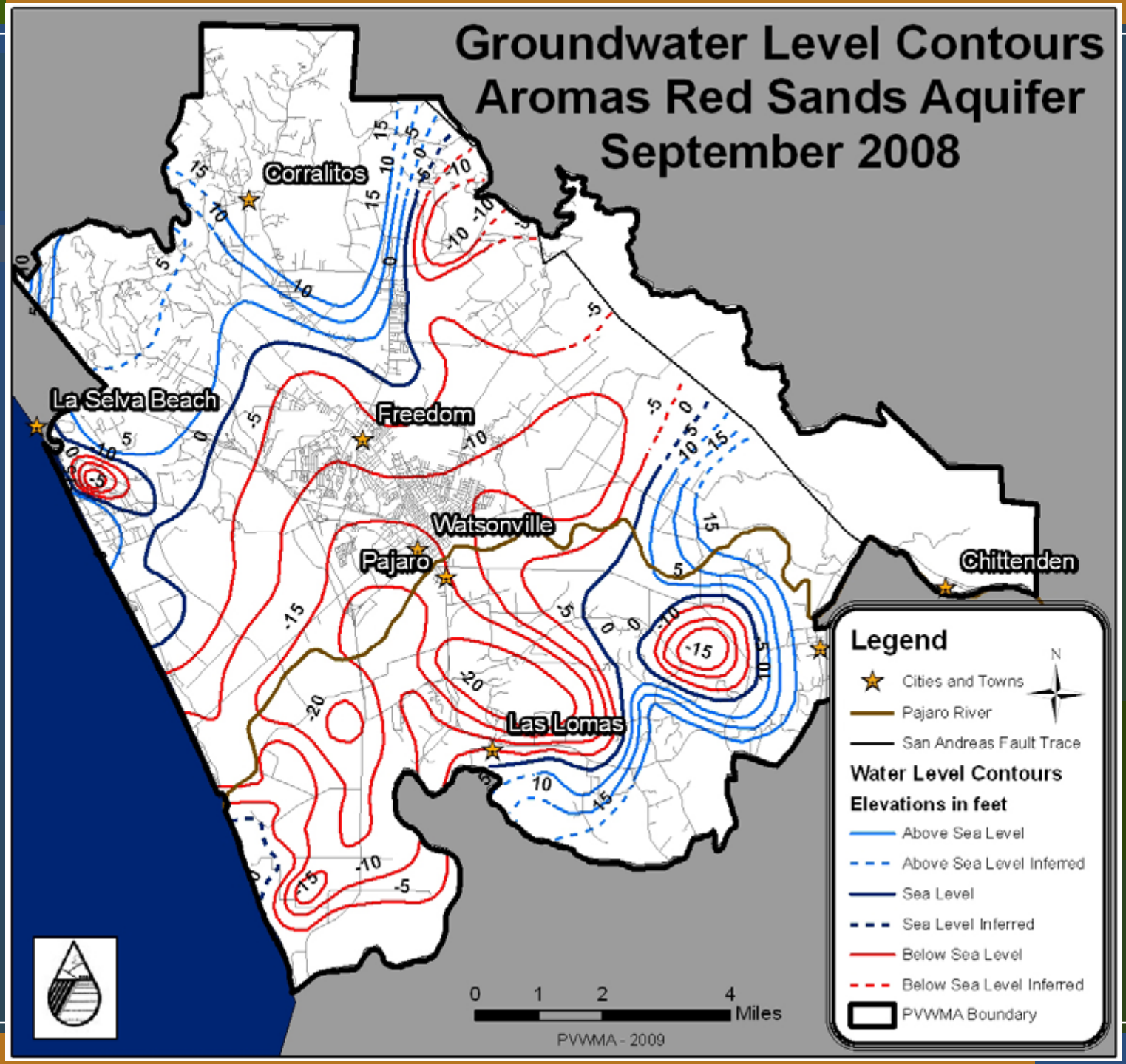
April 2005

Explanation

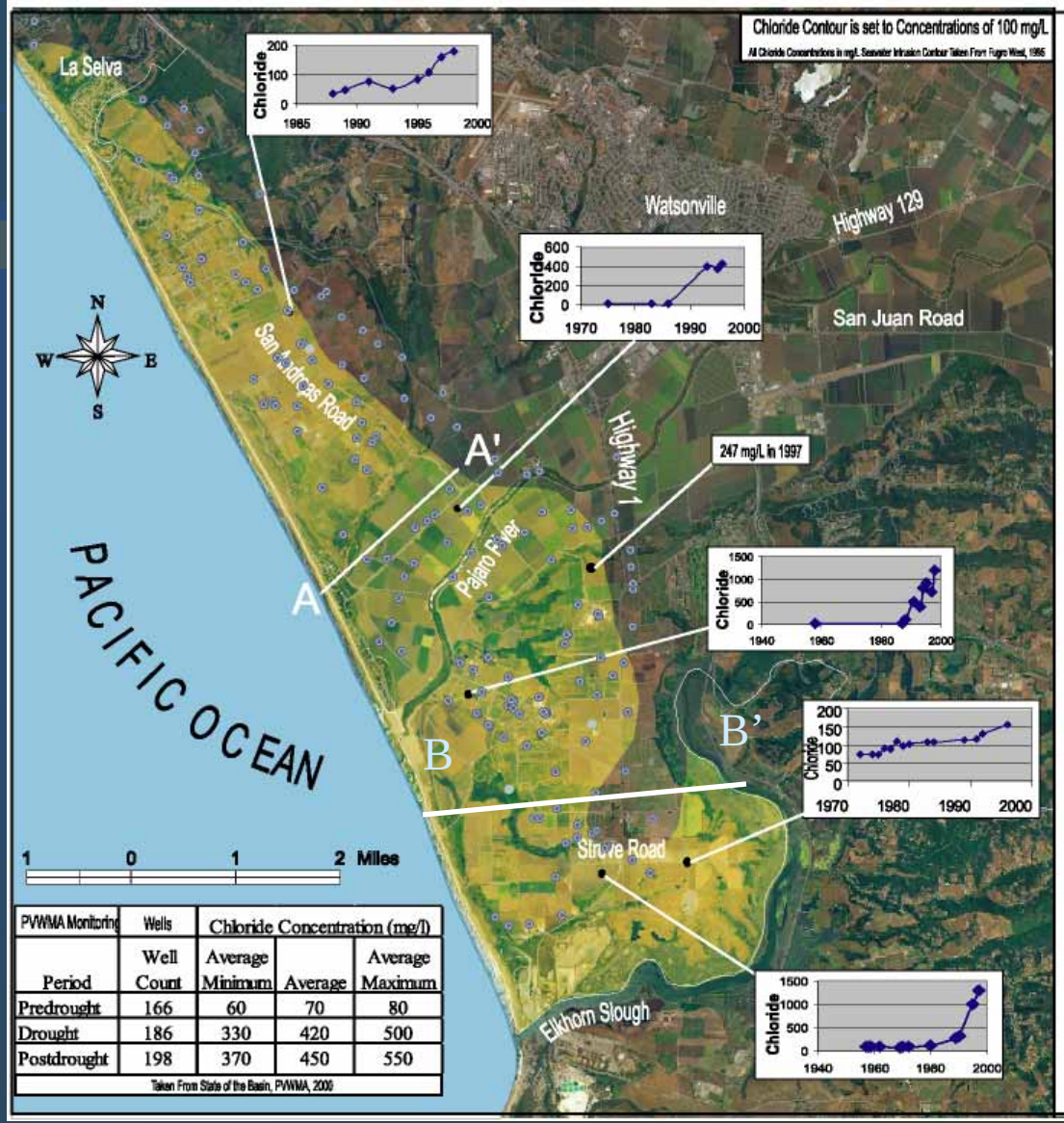
Above Sea Level

Below Sea Level

Pajaro Valley Water Management Agency


Groundwater Level Contours
Aromas Red Sands Aquifer
September 2008
Corralitos
La Selva Beach
Freedom
Watsonville
Pajaro
Chittenden
Las Lomas
Legend
Cities and Towns
Pajaro River
San Andreas Fault Trace
Water Level Contours
Elevations in feet
Above Sea Level
Above Sea Level Inferred
Sea Level
Sea Level Inferred
Below Sea Level
Below Sea Level Inferred
PVWMA Boundary
N
0 1 2 4
Miles
PVWMA - 2009

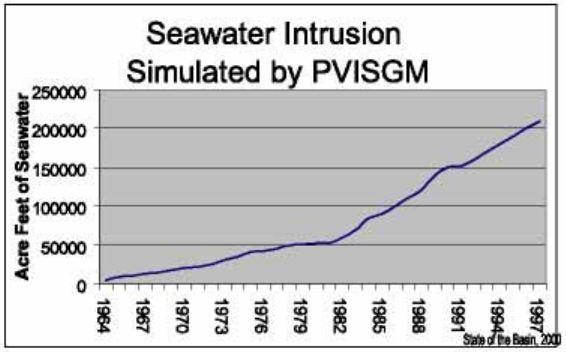
The Problem:

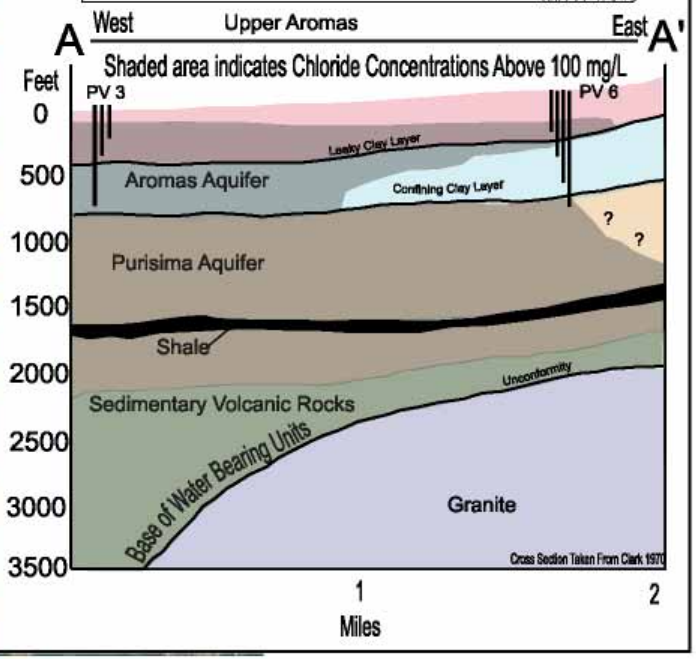


PVWMA Monitoring	Wells	Chloride Concentration (mg/l)		
Period	Well Count	Average Minimum	Average	Average Maximum
Predrought	166	60	70	80
Drought	186	330	420	500
Postdrought	198	370	450	550

Taken From State of the Basin, PVWMA, 2000

Summary of Seawater Intrusion Within the Pajaro Basin





The Solution as Defined in the 2002 Basin Management Plan

- Replace coastal pumping with Supplemental Supply
  - 13,500 acre feet/year Imported (CVP) Water
  - 4,000 acre feet/year Recycled Supply
  - 1,000 acre feet/year Harkins Slough ASR

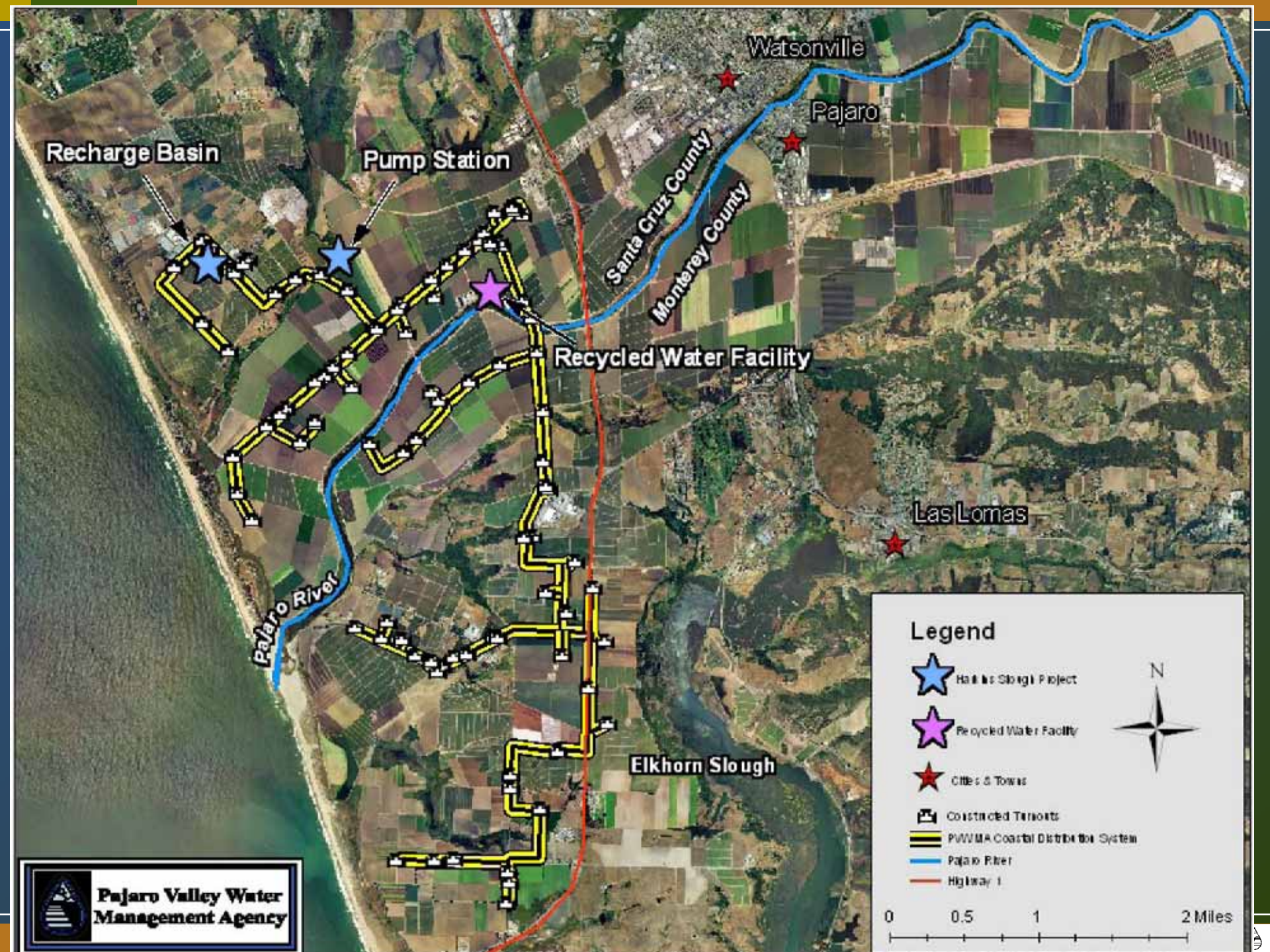
- *Recycled water was recognized as a likely supplemental supply before any infrastructure was built…..*

The Solution (partial)

PVWMA Supplemental Water Project

- Coastal Distribution System
  - 20 mile Pipeline System – ***all*** "purple pipe"

- Blended Water Supply Sources 6,000 AFY
  - Existing Supplies ~2,000 acre feet/year
    - Harkins Slough Project
    - PVWMA Blend Wells
    - City Potable supply from inland wells
  - Recycled Water ~ 4,000 acre feet/year


Watsonville
Pajaro
Recharge Basin
Pump Station
Santa Cruz County
Monterey County
Recycled Water Facility
Las Lomas
Pajaro River
Elkhorn Slough
Legend
Harkins Slough Project
Recycled Water Facility
Cities & Towns
Constructed Tunnels
PVWMA Coastal Distribution System
Pajaro River
Highway 1
N
0
0.5
1
2 Miles
Pajaro Valley Water Management Agency

Harkins Slough Project: Aquifer Storage & Recovery

Harkins Slough Project has been diverting flood flows to recharge basin since 2002

- Has recharged 6,000+ acre ft into coastal aquifers (>2 billion gallons)
- Designed to have recharged water extracted during irrigation season – have had only limited success
- Project enhancements being studied by several teams:
  - Dr. Andy Fisher – UCSC
  - Dr. Rosemary Knight – Stanford University

Recycled Water Project Provides an Additional 4,000 AFY of new supply

- Nearly 20 yrs from plans to completion
- In partnership with City of Watsonville
- Reduces ocean discharge - MBMS
- Similar to CSIP Project (Castroville)

LOCATION, LOCATION, LOCATION!

Wastewater Treatment Facility ideally located to supply recycled water to coastal agricultural users. Adjacent to agricultural area with concentrated demand.

Recycled Project deliveries began in March 2009

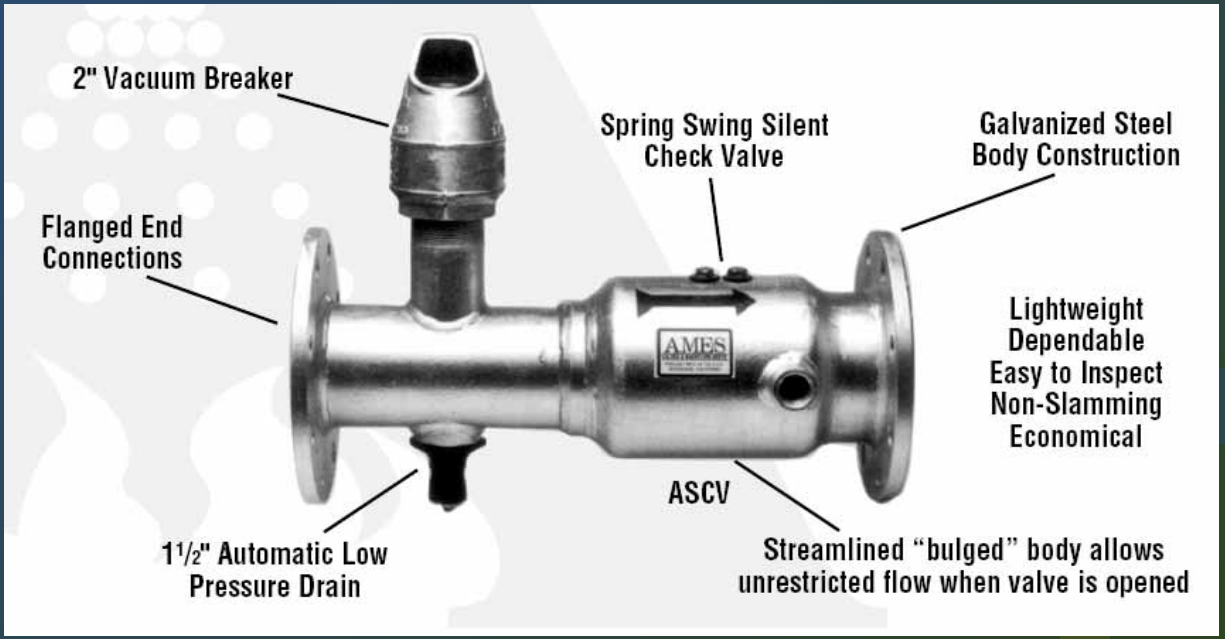
- Blended Recycled Water:
  - Must meet strict State Title 22 standards for delivery of recycled water
    - Separation of non-potable from potable supplies
    - Purple pipe designation
    - Signage – English and Spanish
- Recycled water blended to reduce salt content
- Nitrates in recycled water are considered as crop amendment, reducing fertilizer demand

Three Categories of Water Users Require Plumbing Modifications

- Agricultural Wells Only
  - Requires backflow prevention at wellhead
- Agricultural and Potable Wells on same property (not interconnected)
  - Requires backflow prevention at agricultural wellhead
  - Requires overspray protection at potable well
- Dual Plumbed/Combined Agricultural and Potable Well
  - Requires air gap separation between potable and agricultural piping

Design Standards Manual Specifies Water Quality Protection

- Overspray Protection
- Runoff Management
- Backflow Prevention



Users Handbook Defines Distribution Safety Measures and Training Requirements

- Permit Process
- Designation and Training of On-Site Irrigation Supervisor
- Inspection and Testing Requirements
- Water Ordering Procedures
- Emergency Procedures
- Signage Requirements

State of California emphasizing Recycling as critical supply

- Advocacy groups working with State to update Title 22 regulations
  - WateReuse
  - Association of California Water Agencies (ACWA)
- PVWMA has received Grants to fund projects:
  - Calif. Prop 13- $16 M
  - Calif. Prop 50 - $11M
  - Fed. Title XVI - $20 M
    - » TOTAL $47 MILLION

State of California emphasizing Recycling as critical supply

- State Water Resources Control Board has goal of 1-million acre feet recycled by 2020

- Currently 500,000 acre feet being reused

- California discharges 4-million acre feet per year of used water to the ocean

State-of-the-art Facility - $48 million PVWMA portion $33 million

- 7.7 mgd tertiary treatment facility
- Hi-rate floc/sed system
- Cloth media filtration
- Ultra Violet disinfection
- 0.4-million gallon equalization tank
- 1 million gallon clearwell
- 1,400 HP distribution pump station

Need to find storage alternatives to keep plant operational in winter, non-irrigation months. Plant currently shuts down over the winter.

LEEDS Certified Operations Center

Award winning design

State-of-the-art analytical laboratory

Questions and Comments?

Thank You!